

Persistent organic pollutants in whole bodies of Pacific herring (*Clupea pallasii*) in Puget Sound, Washington: evidence of environmental segregation of stocks based on contaminant levels and patterns

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We assessed spatial variation in toxic contaminants in seven spawning stocks of Pacific herring (*Clupea pallasii*) from the Puget Sound (PS) and Georgia Basin (GB) to determine the degree to which these stocks are contaminated, and whether contaminant patterns can be useful as “fingerprints” to identify environmental segregation of stocks of this pelagic planktivore. We estimated exposure to persistent organic pollutants in adult herring by measuring whole body concentrations of PCBs, chlorinated pesticides (DDT and its metabolites) and hexachlorobenzene (HCB). Recent exposure to polycyclic aromatic hydrocarbons (PAHs) was estimated from concentrations of PAH-metabolites, measured as fluorescing aromatic compounds (FACs) in herring bile. We observed the greatest exposures of PCBs and biliary FACs in adult herring from the central and southern PS basins, where most urban bays are located. We also identified three unique patterns in PCBs:DDTs:HCB among the seven stocks assessed, comprising one group of three central/southern PS winter spawning stocks, a second group of northern PS and GB winter spawners, and a third, single stock, of northern PS spring spawners (Cherry Point stock). The contaminant patterns we observed in herring suggest that (1) central/southern PS herring stocks are environmentally segregated from the northern PS/GB stocks, (2) the Cherry Point stock is environmentally segregated from two nearby stocks, and (3) zooplankton, their major prey, are substantially contaminated with PCBs and PAHs in the central and southern PS basins.